

## Behavioral Risk Factor Surveillance System

### **Appendix 1: Application for Proposal for the 2016 BRFSS Questionnaire**

Please complete this application as carefully and thoroughly as possible. Incomplete proposals will be returned without review.

#### **SECTION A: TYPE OF APPLICATION**

Is this a(n): ☐ MODIFICATION ☒ ADDITION ☐ CONTINUATION (no changes)  
☐ NEW PLAN FOR EXISTING CORE OR MODULAR QUESTIONS  
☐ PROGRAM WILL HAVE NO QUESTIONS FOR 2016

#### **SECTION B: SECTION OF QUESTIONNAIRE**

This is for a(n): ☐ OPTIONAL MODULE {skip to Section C}  
☐ EMERGING CORE<sup>1</sup> ☒ CORE<sup>2</sup>

If this is an application for Emerging Core or Core, are you interested in including as an Optional Module if question(s) do not pass state coordinator vote?

☐ Yes  
☒ No

#### **SECTION C: PROGRAM INFORMATION**

Program Name:   
Program Contact Person:   
Email:  Telephone:

#### **SECTION D: SOURCE**

1. What is the source of the question(s)?  
☒ We developed the question(s) {skip to Q4}  
☐ The question(s) is/are from an existing instrument or adapted from an existing instrument

#### **SECTION E: PERFORMANCE**

If not developed by your program then answer Q2-3; otherwise, skip to Q4

2. Please provide the name of the original instrument or source for each question:

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3. Did you modify the question(s) from the original instrument?

<sup>1</sup> Please note that the number of emerging core questions is limited to 4. Proposals with more than 4 questions will not be considered for emerging core.

<sup>2</sup> Additions to the BRFSS Standard Core Questionnaire are limited and will be prioritized.

- ☐ Yes  
☐ No

**4. Have these questions been part of a human subjects review determination and if so, what is the protocol #.**

☐ State level

If checked, provide Protocol #

☒ HHS level

If checked, provide Protocol #

HHS000-1996-00599; CDC IRB #2900

Questions 5 and 6 ask for evidence of [validation](#) and [reliability](#) testing. Please click on the links for more information regarding these concepts or go to this [Link](#) for a summary of both.

**5. Have the question(s) undergone validation testing?**

- ☒ Yes  
☐ No  
☐ Yes – but not completed

**If yes, please provide evidence of the extent of validity testing by providing the following information for each study conducted:**

**Study title:**

Validity of a household gun question in a telephone survey.

**Brief description of methods:**

The validity of self-reported data on the presence of firearms in the home obtained in a telephone survey was assessed in samples of households where a hunting license had been purchased or a handgun registered. The survey was conducted among a random sample of Ingham County, MI, residents who had purchased a hunting license between April 1990 and March 1991 and among those registering a handgun during 1990. A third study sample was selected from the county's general adult population using a random digit dialing method. The interviews were conducted between November 1991 and January 1992.

**Results, including relevant statistics:**

The proportion of respondents who reported that at least one gun was kept in their household was 87.3 percent among handgun registration households and 89.7 percent among hunting license households. In the survey of the general population of the county, approximately one-third of the respondents reported keeping a gun in the household, 67 percent of them for hunting and 23 percent for safety. The findings indicate that a question on gun presence in a household can be used in a telephone survey and yield truthful responses by participants.

**Citation (if applicable):**

Rafferty AP, Thrush JC, Smith PK, McGee HB. Validity of a household gun question in a telephone survey Public Health Rep. 1995 May-Jun;110(3):282-8.

**6. Has the reliability of questions been tested?**

- ☒ Yes  
☐ No  
☐ Yes – but not completed

**If yes, please provide evidence of the extent of reliability testing by providing the following information for each study conducted:**

**Study title:**

Second Injury Control and Risk Survey

**Brief description of methods**

Although not formally tested, firearm questions asked in the BRFSS core in 2002 were also asked in the Second Injury Control and Risk Survey, which was fielded from July 2001 through February 2003. Data for the Second Injury Control and Risk Survey were collected through a cross-sectional, list-assisted random-digit-dial (RDD) telephone survey of English- or Spanish-speaking adults (age 18 years or older) in all 50 U.S. states and the District of Columbia living in eligible households as defined by the U.S. Bureau of the Census.

**Results, including relevant statistics:**

The prevalence of household firearms was similar across the two random-digit dial household surveys. The prevalence of a firearm in the home reported by respondents in the 2002 BRFSS core was 33.1%. In ICARIS-2, the prevalence of a firearm in the home reported by respondents was 35%. The General Social Survey provides another reference point for comparison. In 2000 and 2002, the survey asked respondents if they had a gun in the home. The prevalence of a gun in the home reported by respondents in the GSS was 34.3% in 2000 and 36.4% in 2002.

**Citation (if applicable)**

United States Department of Health and Human Services, Centers for Disease Control and Prevention, Second Injury Control and Risk Survey (ICARIS-2) [Computer File]. Atlanta, GA.

**7. Have the question(s) undergone cognitive testing?**

- ☐ Yes (skip next question and go to Date of testing Question)  
☒ No

**If no, does program want PHSB to have testing conducted?**

- ☐ Yes (go to Question 8)  
☒ No (go to Question 8)

**If yes, please describe the study design and results:**

**Date of testing:**

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**Study design:**

**Results:**

Please submit any cognitive testing reports to Dr. Carol Pierannunzi ([ivk7@cdc.gov](mailto:ivk7@cdc.gov)) and copy George Khalil ([uwm4@cdc.gov](mailto:uwm4@cdc.gov)).

**8. Have the questions already been administered in surveys or research studies?**

- ☒ Yes  
☐ No

If yes, please provide citation(s) and population to which it was administered:

**Citation:**

The questions were included in optional modules of the BRFSS from 1995-1998, the fixed core in 2000 and 2001, and the rotating core in 2002 and 2004 (<http://www.cdc.gov/brfss/index.htm>). The questions were also included in the 1994 Injury Control and Risk Survey (ICARIS-1), and the Second Injury Control and Risk Survey (ICARIS-2) <http://www.cdc.gov/Injury/wisqars/pdf/ICARIS2-PublicUse-DataSet-Documentation.pdf>).

**Population**

State and nationally representative populations of adults aged 18 and older in the United States

**9. Please indicate approximate total time to administer the set of questions, including instructions.**

- ☐ <30s  
☒ 30s-1min (35 seconds total time; 23 seconds for the preamble and first question; 12 seconds total for the other two questions)  
☐ 1-2 min  
☐ >2 min  
☐ Unknown

**10. Please indicate the average time to administer per question.**

- ☒ <10s  
☐ 11-20s  
☐ >20s  
☐ Unknown

Please provide the methods used to obtain the timing data:

Estimates are based on previous administrations of these questions in the BRFSS and the ICARIS surveys. The first question (presence of a firearm in the home) is a screening question. Respondents who answer “no” to the first question are not asked the other two questions (whether loaded and unlocked).

**11. Are the question(s) telephone/cell phone-survey ready?**

- ☒ Yes  
☐ No

Please describe how you determined the telephone/cell phone-survey readiness of the survey

The firearm questions are simple and well-suited for telephone interviewing. They have been used in both state and national RDD surveys. They were included in optional modules of the BRFSS from 1995-1998, the fixed core in 2000 and 2001, and the rotating core in 2002 and 2004. The questions were also included in two nationally representative telephone surveys – the 1994 Injury Control and Risk Survey (ICARIS-1) and the 2001 Second Injury Control and Risk Survey (ICARIS-2) conducted by Battelle on behalf of CDC’s National Center for Injury Prevention and Control.

**SECTION F: PUBLIC HEALTH IMPORTANCE**

**12. Please provide a rationale for why the question(s) is/are important to health behavior or chronic disease by addressing the following:**

**Prevalence or disease burden**

More than 100,000 Americans are injured or killed each year as a result of a firearm, making firearm-related injuries among the 5 leading causes of death for people aged 1-64 in the United States. A firearm is used in 1 out of every 2 suicides and in 68% of homicides in the United States. Firearms are also involved in unintentional shootings, with 1 out of every 25 being fatal. In 2011 (most recent year of available data), there were 32,351 firearm deaths in the United States, for an overall age-adjusted rate of 10.2/100,000. Of those deaths, 62% (19,990) were suicides, 34% (11,068) were homicides, and about 2% (591) were due to unintentional circumstances. In the same year, there were 73,883 non-fatal firearm injuries treated in in hospital emergency departments (age-adjusted rate of 23.6/100,000), including 55,544 cases of firearm-related assault; 3,224 cases of firearm-related self-harm; and 14,675 cases of unintentional firearm-related injuries.

**Estimated costs to the public and healthcare**

The economic impact of firearm-related injuries and deaths is substantial, accounting for \$47.2 billion each year in medical and work loss costs alone.

**How the topic is related to a state or national initiative (e.g. Healthy People 2020):**

Reducing the number of firearm-related deaths and injuries are Healthy People 2020 objectives:

IVP-29: Reduce firearm-related deaths from 10.3/100,000 to 9.3/100,000

IVP-30: Reduce nonfatal firearm-related injuries from 20.7/100,000 to 18.6/100,000

Both the National Association of City and County Health Officials (NACCHO) and Safe States Alliance have developed position statements describing the importance of public health surveillance of firearm-related injuries and associated risk factors. As stated by NACCHO, “local health departments are responsible for creating and maintaining conditions that keep people healthy and safe, including preventing unintentional and intentional firearm-related injury and death.” The recommendations from Safe States Alliance specifically highlighted the importance of using the Behavioral Risk Factor Surveillance System (BRFSS) to better understand firearm safety and storage practices.

**Besides your program, how will other states, programs or agencies benefit from the inclusion of these question(s) in the BRFSS?**

State-specific behavioral data on household firearms and storage practices is not currently available. This information is also not available on a national level. The inclusion of these questions will enable states to determine state-specific estimates of household firearms and safety practices. This information is helpful to develop and better target intervention and educational efforts and will further injury prevention efforts on the state level. States will also be able evaluate policies and interventions (e.g., safe storage practices) focused on reducing firearm injuries.

**SECTION G: ANALYTIC PLAN**

**Please explain why state-level estimates are desired (e.g., impact for your program/agency, local/state/national policy implications, support to research funding.**

There are critical gaps in data related to firearm safety, particularly state-level data. As noted by the IOM/NRC in their report *Priorities for reducing the public health threat of firearm violence* (June 2013), “high-quality data that are usable, credible, and accessible are fundamental to both the advancement of research and the development and evaluation of sound policy. Basic information about gun possession, acquisition, and storage is lacking. The absence of these kinds of data makes it difficult to answer fundamental questions about prevalence, determine etiology, or effectively evaluate programs for potential reduction of harm or injury.”

State-specific data are valuable for a number of reasons: First, there is wide variation in firearm-related deaths among states, with greater rates seen in western and southern states (CDC, WISQARS). Second, risk factors associated with firearm-related injuries and deaths, such as household exposure, also differ by state. In one study using BRFSS data, the prevalence of adults living in households with a firearm ranged from a high of 63% (Wyoming) to a low of 5% in the District of Columbia (Okoro et. al, 2005).

The median was 41%. Third, interventions to prevent firearm-related injury and death are state-specific. Therefore, state-specific estimates and rates are needed to evaluate the effect of these interventions.

**13. Please explain why there is a need to measure the question(s) over time**

Fatal and non-fatal firearm-related injury rates are not static, especially among specific age groups (CDC, WISQARS). Temporal variation is important on the state level as a means of evaluating prevention efforts and the impact of other societal changes.

**Please describe how calculated variable(s) will be constructed from the question(s)**

Annual prevalence can be calculated for the presence of a firearm in the household overall and for specific subpopulations (e.g., households with children under the age of 18) based on other demographic information collected in the annual BRFSS core survey. Prevalence estimates for firearm safety can also be generated for the general population, for respondents who reported a loaded and unlocked firearm in the household, and for households with children, etc. Examples are given below.

Topic: Household firearms

Numerator: Respondents aged 18 or older who reported the presence of a firearm in the household

Denominator: Respondents aged 18 or older

Measures of Frequency: Annual prevalence rate

Topic: Firearm safety

Numerator: Households with children <18 years who reported a loaded and unlocked firearm in the household

Denominator: All households with children <18 years

Measures of Frequency: Estimated proportion of children living in a household with a loaded and unlocked firearm

**Please describe how the variable(s) will be used in analyses (e.g., outcome, predictor, etc.).**

The variables will be used as outcomes (e.g., to determine prevalence estimates of household firearms and safety practices at the state and national level; to estimate the prevalence of children exposed to loaded and unlocked firearms), and as predictors (e.g., in analyses combining these data with other state-based data (e.g., emergency department data on firearm-related injuries; state data from the National Violent Death Reporting System; and other sources) to assess injury risk and exposures.

**14. Based on your questions of interest and anticipated effect size, please provide an estimate for required sample size and the rationale/calculations used to determine the size.**

**Estimated Sample Size:**

The estimated required sample size for the prevalence of a firearm in the household is 1888; for the prevalence of a loaded firearm in households with children <18 years of age, the required sample size is 1,926. The average sample sizes for the 50 participating states are well above the sample sizes required.

**Rationale/calculations:**

For an expected prevalence of 33% for the presence of a firearm in the home, a total sample size of 1888 is required for precision with  $\pm 3\%$  points (95% confidence interval 30%-36%), assuming a design effect of 2.0. For an expected prevalence of 6% for the presence of a loaded firearm in households with children <18 years of age, a total sample size of 1,926 is required for precision  $\pm 1.5\%$  points (95% confidence interval 4.5%-7.5%), assuming a design effect of 2.0. The state samples in the most recent BRFSS are well above these required sample sizes and are sufficiently large enough to provide estimates for subpopulations.



## **SECTION H: MODIFICATIONS**

**Current wording of proposed question(s) (please attach additional Word document if space below is not sufficient)**

The next questions are about firearms. We are asking these in a health survey because of our interest in firearm-related injuries. Please include weapons such as pistols, shotguns, and rifles; but not BB guns, starter pistols, or guns that cannot fire. Include those kept in a garage, outdoor storage area, or motor vehicle.

1. Are any firearms now kept in or around your home?
  1. Yes
  2. No [go to closing statement]
  3. Don't know/not sure [go to closing statement]
  4. Refused [go to closing statement]
2. Are any of these firearms now loaded?
  1. Yes
  2. No [go to closing statement]
  3. Don't know/not sure [go to closing statement]
  4. Refused [go to closing statement]
3. Are any of these loaded firearms also unlocked? By "unlocked" we mean you do not need a key or a combination to get the gun or to fire it. We don't count a safety as a lock.
  1. Yes
  2. No
  3. Don't know/not sure
  4. Refused

5. **New wording of proposed question(s) (please attach additional Word document if space below is not sufficient)**

No changes in wording are proposed. The questions above are the same as those asked in the 2002 and 2004 BRFSS core questionnaires.

